

K-6670

9 DECEMBER 1965

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FISHBED IN FLIGHT

NEAR SHAN-TOU, CHINA

1. SIGNIFICANCE:

FISHBED AIRCRAFT OBSERVED ONLY 8 NM (SLANT RANGE) FROM MISSION AIRCRAFT AT AN ALTITUDE OF APPROXIMATELY 75,000 FEET.

2. REMARKS:

THE CHINESE MAY BE EMPLOYING THE ZOOM CLIMB TECHNIQUE IN HIGH-ALTITUDE INTERCEPT TACTICS. TO INTERCEPT TARGETS ABOVE THE STATIC CEILING OF THE FIGHTER THE ZOOM CLIMB TECHNIQUE MUST BE USED.

THE MANEUVER IS EXECUTED IN THE FOLLOWING MANNER: THE INTERCEPT CONTROLLER KNOWS THE TARGET'S SPEED AND ALTITUDE, AND THUS CAN COMPUTE THE REQUIRED INTERCEPTOR MACH NUMBER BASED ON THE DESIRED APPROACH RATE. HE DETERMINES THE CORRECT PITCH ANGLE FOR BLEEDING OFF AIRSPEED AT A GIVEN RATE TO PUT THE FIGHTER AT THE DESIRED MACH NUMBER AT TARGET ALTITUDE. THE DISTANCE BEHIND THE TARGET AT THE START OF THE MANEUVER IS DETERMINED BY THE CONTROLLER. AT THE START OF THE MANEUVER, THE PILOT USUALLY HAS ACQUIRED THE TARGET VISUALLY AND CAN REFINE THE MANEUVER ON THE BASIS OF HIS OBSERVATIONS.

ZOOM CLIMB FOR GAINING DYNAMIC ALTITUDES IS STARTED AT ABOUT 46,000 FT WHERE THE COMBINATION OF EXCESS THRUST, KINETIC ENERGY, AND AVAILABLE MANEUVERING LOAD FACTOR IS MOST FAVORABLE.

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AN AIRCRAFT CAN MAINTAIN LEVEL FLIGHT AT ALTITUDES ABOVE STATIC CEILING ONLY BY DISSIPATING SURPLUS SPEED, SO IT IS DESIRABLE TO HAVE EXCESS VELOCITY WHEN ARRIVING AT TARGET ALTITUDE. LEVEL FLIGHT THEN CAN BE MAINTAINED BY CONTINUALLY DECREASING THE VELOCITY (CONTINUALLY INCREASING THE ANGLE OF ATTACK). THIS WILL ALLOW THE AIRCRAFT TO ACCOMPLISH THE SIGHTING AND FIRING PHASE OF THE ATTACK.

A PITCH ANGLE OF 10-20 DEGREES IS MOST SUITABLE FOR DYNAMIC CLIMB TO ALTITUDES OF 69,000 - 72,000 FT AND A PITCH ANGLE OF 20-25 DEGREES IS BEST FOR CLIMB TO ALTITUDES OF 72,000 - 75,000 FT. PITCH ANGLES CAN BE SELECTED WHICH WILL YIELD ALTITUDES IN EXCESS OF 79,000 FT. HOWEVER, CLIMB TO ALTITUDES ABOVE 72,000 FT WILL CAUSE THE A/B TO FLAMEOUT WITH MAIN ENGINE FLAMEOUT PROBABLE SHORTLY THEREAFTER. NORMAL HYDRAULIC AND ELECTRICAL SYSTEM OPERATION THEN WILL BE LOST AND AIRCRAFT CONTROLLABILITY WILL BE DECREASED GREATLY AT THE LOW MACH NUMBERS ENCOUNTERED. UNDER THESE CONDITIONS, THE AIRCRAFT WOULD HAVE PRACTICALLY NO EFFECTIVENESS AS A WEAPON SYSTEM.

EXTREMELY ACCURATE VECTORING IS REQUIRED SINCE LITTLE AZIMUTH CONTROL IS POSSIBLE ONCE THE MANEUVER HAS BEEN STARTED. GOOD PILOT TECHNIQUE IS REQUIRED TO EFFECT THE TRANSITION FROM ZOOM TO LEVEL FLIGHT AND TO MAINTAIN SMOOTH CONTROL DURING THE SIGHTING AND FIRING. THE ZOOM CLIMB MANEUVER IS CONSIDERED TO HAVE A FAIR DEGREE OF EFFECTIVENESS UP TO AN ALTITUDE OF 72,000 FT AGAINST TARGETS FLYING IN THE MACH 1.0 - 1.4 REGION. AT TARGET SPEEDS BELOW MACH 1.0, THE

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MANEUVER IS DIFFICULT BECAUSE OF THE HIGH CLOSURE RATES RESULTING FROM THE INTERCEPTOR SPEEDS WHICH ARE NECESSARY TO PREVENT A/B OR ENGINE FLAMEOUT. (FOREIGN TECHNOLOGY DIVISION, TECHNICAL STUDY 65-24, 19 NOV 65).

3. LOCATION:

APPROXIMATELY 2321N 11650E.

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5. MISSION READOUT:

[REDACTED] REVEALS A FISHBED AIRCRAFT 8 NM FROM THE MISSION AIRCRAFT (SLANT RANGE) AT AN APPROXIMATE ALTITUDE OF 75,000 FT. THE TIME OF THE SIGHTING WAS 0535Z.

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PREPARED BY: NPIC/CSD

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5012  
120  
SLANT RANGE 47,008' ~~feet~~

FISABED ALTITUDE 74,895' ~~feet~~

The U-2 was at 73,880 feet and the MIG 21 was 1015 feet higher than our U-2 at the time this exposure was made.

The angular relationships put the MIG above our aircraft even if errors exist in the Computed Altitude of our U-2.

The MIG was traveling basically parallel to the U-2 Heading -

It was 11,000 feet to the rear of our aircraft.

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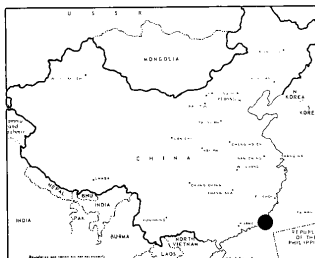
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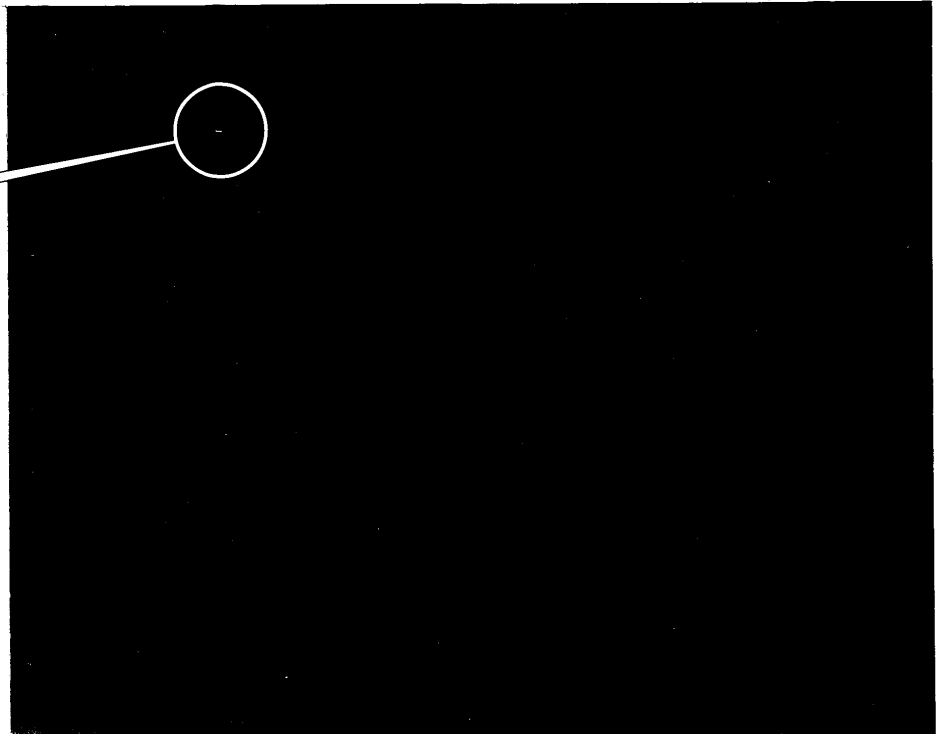
**FISHBED IN FLIGHT  
NEAR SHAN-TOU, CHINA  
23-21N 116-50E (APPROXIMATE)**



SLANT RANGE 8NM  
APPROX ALTITUDE 75,000'



NPIC K-6670 (12/65)



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